

This listing of claims will replace all prior versions and listings of claims in this application.

Listing of Claims

Claims 1-41 (canceled)

Claim 42 (currently amended): A method of reconstituting an animal embryo, comprising

- (i) transferring a donor nucleus from a diploid somatic cell into a first recipient oocyte;
- (ii) removing the nucleus from the first recipient oocyte;
- (iii) either activating a second recipient oocyte or enucleating a fertilized zygote; and
- (iv) transferring the nucleus from the first recipient oocyte into the preactivated second recipient oocyte or the enucleated fertilized zygote.

Claim 43 (previously presented): The method as claimed in claim 42, wherein the first oocyte is a mature metaphase II oocyte or an activated metaphase II oocyte.

Claim 44 (previously presented): The method as claimed in claim 42, wherein the second oocyte is an enucleated metaphase II oocyte.

Claim 45 (previously presented): The method as claimed in claim 42, in which a reconstructed embryo obtained thereby is cultured *in vitro* or *in vivo* to a stage suitable for transfer to a final surrogate recipient for development to term.

Claim 46 (previously presented): The method as claimed in claim 42, in which a reconstructed embryo obtained thereby is transferred to a final surrogate recipient to support embryo development and development to term.

Claim 47 (previously presented): The method as claimed in claim 42, in which the donor nucleus is genetically modified.

Claim 48 (canceled)

Claim 49 (currently amended): The method as claimed in claim 42~~48~~, wherein the donor nucleus is from a G1 cell.

Claim 50 (currently amended): The method as claimed in claim 42~~48~~, wherein the diploid cell is arrested at the G1/S-phase border.

Claims 51-55 (canceled)

Claim 56 (currently amended): The method as claimed in claim 42, wherein the donor nucleus is donated by a diploid cell arrested by any point in the cell cycle.

Claim 57 (previously presented): The method as claimed in claim 42, wherein the first recipient oocyte is enucleated.

Claim 58 (previously presented): The method as claimed in claim 42, wherein the donor nucleus is transferred into the first recipient oocyte by cell fusion, or by cell or nuclear injection.

Claim 59 (previously presented): The method as claimed in claim 42, in which the animal embryo is an ungulate species embryo.

Claim 60 (previously presented): The method as claimed in claim 59, wherein the animal embryo is a cow or bull, pig, sheep, goat, camel, or water buffalo embryo.

Claim 61 (previously presented): The method as claimed in claim 42, wherein the animal embryo is a mouse, rat, or other rodent embryo.

Claim 62 (previously presented): The method as claimed in claim 42, wherein the animal embryo is a lagomorph embryo.

Claim 63 (previously presented): The method as claimed in claim 62, wherein the animal embryo is a rabbit embryo.

Claims 64-65 (canceled)

Claim 66 (previously presented): The method as claimed in claim 42, wherein the nucleus is transferred from the first recipient oocyte to a fertilized zygote.

Claim 67 (previously presented): The method as claimed in claim 42, wherein the second recipient oocyte is activated by chemical or physical means.

Claim 68 (previously presented): The method as claimed in claim 42, wherein the second recipient oocyte is enucleated.

Claim 69 (currently amended): A method of preparing an animal, the method comprising:

- (a) reconstituting an animal embryo as claimed in claim 42, thereby obtaining a reconstituted embryo,
- (b) causing a ~~foetus~~ fetus to develop from the embryo, thereby obtaining an animal a ~~foetus~~ fetus; and

(c) causing an animal to develop to term from the animal a ~~foetus~~ fetus,
thereby obtaining an animal.

Claim 70 (previously presented): The method as claimed in claim 69, further
comprising:

(d) breeding the animal.

Claim 71 (previously presented): A method as claimed in claim 69, wherein the animal
embryo is further manipulated prior to full development of the embryo.

Claim 72 (currently amended): A method as claimed in claim 69, wherein the animal a
~~foetus~~ fetus is further manipulated prior to full development of the fetus ~~embryo~~.

Claim 73 (previously presented): The method as claimed in claim 69, wherein a new cell
line or cell population is derived from the reconstituted embryo.

Claim 74 (currently amended): The method as claimed in claim 69, wherein a new cell
line or cell population is derived from the animal a ~~foetus~~ fetus.

Claim 75 (previously presented): The method as claimed in claim 69, wherein a new cell
line or cell population is derived from the animal.

Claim 76 (previously presented): The method as claimed in claim 69, wherein more than
one animal is derived from the reconstituted embryo.

Claim 77 (canceled)

Claim 78 (canceled)

Claim 79 (canceled)

Claim 80 (currently amended): An isolated embryonic stem cell line or cell population obtained from an ungulate embryo produced by the method of claim 42.

Claim 81 (currently amended): An isolated undifferentiated cell line or cell population obtained from an ungulate embryo produced by the method of claim 42.

Claim 82 (currently amended): An isolated differentiated cell line or cell population obtained from an ungulate embryo produced by the method of claim 42.

Claim 83 (previously presented): The method as claimed in claim 67, wherein the chemical or physical activation is by a treatment that induces calcium entry into the oocyte or release of internal calcium stores.

Claim 84 (previously presented): The method as claimed in claim 67, wherein the chemical activation is by treatment with ethanol, ionomycin, inositol tris-phosphate or calcium ionophore A23187.

Claim 85 (previously presented): The method as claimed in claim 67, wherein the chemical activation is by treatment with extracts of sperm.

Claim 86 (previously presented): The method as claimed in claim 67, wherein the physical activation is by application of a DC electrical stimulus.

Claim 87 (previously presented): The method as claimed in claims 83-86, wherein the chemical or physical activation further comprises treatment with inhibitors of protein synthesis or inhibitors of serine threonine protein kinases.

Claim 88 (previously presented)The method as claimed in claim 42, wherein the animal embryo is a pig embryo.

Claim 89 (new): A method of constructing a cell, comprising

- (i) transferring a donor nucleus from a diploid somatic cell into a first recipient oocyte;
- (ii) removing the nucleus from the first recipient oocyte;
- (iii) either activating a second recipient oocyte or enucleating a fertilized zygote; and
- (iv) transferring the nucleus from the first recipient oocyte into the preactivated second recipient oocyte or the enucleated fertilized zygote.